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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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STERNE, KESSLER, GOLDSTEIN & FOX PLLC
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
SULLIVAN, DANIEL M	
ART UNIT	**PAPER NUMBER**
1636	

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,216	CHIOCCA ET AL.	
	Examiner	Art Unit	
	Daniel M. Sullivan	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,38 and 39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,38 and 39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is a reply to the Paper filed 14 December 2004 in reply to the Non-Final Office Action mailed 14 September 2004. Claims 4-37 were withdrawn from consideration and claims 1-3 were considered in the 14 September Office Action. Claims 4-37 were canceled, claim 1 was amended and claims 38 and 39 were added in the 14 December Paper. Claims 1-3, 38 and 39 are pending and under consideration.

Response to Amendment

Claim Objections

Objection to claim 1 as containing informalities is withdrawn in view of the amendments thereto.

Claim Rejections - 35 USC § 112

Rejection of claims 1-3 under 35 USC §112, second paragraph, as indefinite in reciting HSV-based amplicon is withdrawn because the recitation is not viewed as limiting or defining the scope of the subject matter claimed. HSV-based vectors are defined in paragraph [0033] of the specification as "derived from an alpha herpesvirus such as a herpes simplex virus". Thus, the limitation defines the starting material from which the vector is derived. As the claims are directed to the final product of the derivatization process, not the starting material, and there is no limit on the extent to which a herpes virus can be derivatized and still be considered HSV-based, the requirement that the amplicon vector be HSV-based does not limit what is claimed. Instead, the claimed subject matter is defined by the limitations set forth in the body of the claim.

Claim Rejections - 35 USC § 102 and 103

Rejection of claims 1 and 2 under 35 USC §102(b) as being anticipated by Vos *et al.* and under 35 USC §103(a) as unpatentable over Vos *et al.* in view of Horsburgh *et al.* is withdrawn in view of the limitation of the claimed amplicon to comprising an HSV ori_s origin of replication.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horsburgh *et al.* US Patent No. 6,277,621 (previously made of record) in view of Johnston *et al.* (1997) *Hum. Gene Ther.* 8:359-370.

The claims are directed to a an amplicon vector carrying a genomic DNA fragment, wherein the vector comprises: (a) a large capacity cloning vector; (b) an HSV ori_s origin of replication; (c) an HSV *pac* cleavage/packaging signal; and (d) a genomic DNA fragment; wherein said HSV-based amplicon vector is capable of infecting and delivering said genomic DNA to a target cell.

In the paragraph bridging columns 1-2, Horsburgh *et al.* describes an artificial chromosome construct containing a nucleic acid that directs formation of a recombinant virus upon introduction into a cell and that the recombinant virus encoded by the artificial chromosome construct can be an HSV virus. In the paragraph bridging columns 4-5, Horsburgh *et al.* teaches that when the artificial chromosome constructs described therein contain a heterologous gene encoding a therapeutic gene product, it is desirable that the virus produced from the artificial chromosome construct is attenuated or mutated so that it does not replicate and/or so that it cannot kill the cell in which it is produced. In that same paragraph, Horsburgh goes on to cite several examples of HSV-based amplicons known in the art that might be used in the artificial chromosome constructs. Thus, Horsburgh *et al.* teaches a large capacity cloning vector (*i.e.*, artificial chromosome) comprising an HSV amplicon. In addition, all of the artificial chromosome vectors contemplated by Horsburgh *et al.* (see, *e.g.*, the sentence bridging columns

1-2) comprise genomic DNA. Therefore, the vectors also comprise "a genomic DNA fragment". Furthermore, in the first full paragraph in column 5, Horsburgh *et al.* contemplates nucleic acids encoding various therapeutic products that might be delivered using the amplicon vector, which nucleic acids would also comprise genomic DNA fragments (*i.e.*, exons).

Horsburgh *et al.* teaches a vector comprising all of the limitations of the instant claim 1 except for an explicit teaching that the vector should comprise an HSV ori_s origin of replication or an HSV *pac* cleavage/packaging signal.

Johnston *et al.* teaches an improved amplicon vector comprising the HSV ori_s origin of replication and the HSV *pac* cleavage/packaging signal (see especially the Abstract and the third paragraph on page 360). The amplicon vectors of Johnston *et al.* further comprise AAV inverted terminal repeat sequences which were found to significantly improve retention of the vector in neuronal cells and the duration of transgene expression relative to other HSV amplicons known in the art (see throughout, especially the paragraph bridging the left and right columns on page 367).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the HSV amplicon vector comprising the HSV ori_s origin of replication and HSV *pac* cleavage/packaging signal of Johnston *et al.* to construct the artificial chromosome comprising an HSV amplicon according to the teachings of Horsburgh *et al.* Motivation to combine these teachings comes from Horsburgh *et al.* who teaches that the purpose of artificial chromosome constructs comprising attenuated viral vectors is to deliver therapeutic genes and from Johnston *et al.*, who teaches that the amplicon vectors disclosed therein provide more persistent transgene expression relative to other HSV amplicon vectors known in the art. Absent

evidence to the contrary, one would have a reasonable expectation of success in combining these teachings because the art of artificial chromosomes as large capacity vectors is well-established and Johnston *et al.* demonstrates the efficacy of the HSV amplicon vector described therein.

For these reasons, the vector of claim 1, as a whole, would have been obvious to one of ordinary skill in the art at the time the invention was made.

Furthermore, the limitations of dependent claims 2, 3, 38 and 39 are also obvious over the cited art for the reasons set forth above. Specifically, Horsburgh *et al.* teaches that the large capacity cloning vectors can be a BAC, PAC, YAC, MAC or human according to claims 2 and 3, and the HSV amplicons of Johnston *et al.* are comprised within the broadest reasonable interpretation of "HSV-1-based" and "HSV-2-based" (see *supra*) according to claims 38 and 39.

Thus, the invention of claims 1-3, 38 and 39, as a whole, would have been obvious to one of ordinary skill in the art at the time the invention was made based on the teachings of Horsburgh *et al.* in view of Johnston *et al.* Therefore, the claims are properly rejected under 35 USC §103(a).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 571-272-0779. The examiner can normally be reached on Monday through Thursday 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on 571-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel M. Sullivan, Ph.D.
Examiner
Art Unit 1636